

Noise at the work site

OHS information for employers, workers and service providers

This bulletin provides information about noise in the workplace.

KEY INFORMATION

- Noise is a workplace hazard that can cause permanent hearing loss. A noise exposure assessment is required when noise levels exceed 82 dBA L_{ex} .
- Employers must ensure any hearing protection devices used and worn by their workers are fit tested to them in accordance with the applicable CSA standard, since the devices are ineffective if used or worn improperly.
- Noise induced hearing loss is a notifiable disease under Section 30 of the *Occupational Health and Safety Act* (OHS Act).

Noise is a workplace hazard

Noise is one of the most common workplace hazards. In many industries and occupations, noise can be loud enough and last long enough to cause hearing loss in workers, sometimes without them even being aware of it.

In addition to hearing loss, the human body can experience physical reactions to noise that are similar to reactions to stress. These can include:

- Increased blood pressure and heart rate.
- Changes in hormone and cholesterol levels.
- Fatigue.

Beyond its direct effects on health, noise can also be a safety hazard by preventing workers from being able to hear alarms and other important communications.

Hearing loss

Hearing loss is an impairment that interferes with a person's ability to hear sound and understand speech. Occupational hearing loss typically occurs because of exposure to elevated noise levels over a period of time. It can also occur because of exposure to ototoxicants – chemicals that can cause hearing loss even without exposure to noise, such as certain pesticides, solvents and pharmaceutical products. The risk of hearing loss is even higher when workers are exposed to these chemicals while also being exposed to elevated noise levels.

Hearing loss normally begins with a reduced ability to hear high-frequency sounds. Since normal speech doesn't use

these high frequencies, workers might not even notice the change in their hearing. But with continued exposure (sometimes over long periods of time), their ability to hear the low frequencies involved in speech deteriorates, and the hearing loss can become more noticeable.

OHS requirements

Part 16 of the OHS Code specifies requirements relating to noise.

Noise levels and exposure limits

Employers must ensure all reasonably practicable measures are used to reduce the noise to which workers are exposed wherever workers may be present at a work site.

Employers must also ensure worker exposure to work site noise doesn't exceed the exposure limits specified in Table 1 of Schedule 3 in the OHS Code (see below) and 85 dBA L_{ex} . An explanation of these noise level measurement units is on the next page.

**OHS CODE SCHEDULE 3, TABLE 1:
NOISE EXPOSURE LIMITS**

Exposure level (dBA)	Exposure duration
82	16 hours
83	12 hours and 41 minutes
84	10 hours and 4 minutes
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 minutes
100	15 minutes
103	8 minutes
106	4 minutes
109	2 minutes
112	56 seconds
115 and greater	0

(Note: Exposure levels and exposure durations to be prorated if not specified.)

UNITS OF NOISE

A common unit of measurement for noise is **dba** ("A-weighted decibels"). This unit is a measurement of all sound frequencies, but assigns more weight to the frequencies that can be heard by the human ear.

Because noise levels at a work site can vary over time, Alberta's occupational exposure limit for noise is based on the average exposure over an 8-hour period, represented by **dba L_{ex}**.

Noise control at the design stage

Employers must ensure that the following are designed and constructed in such a way that the continuous noise levels generated don't exceed 85 dba or are as low as reasonably practicable:

- A new work site or work area.
- Significant physical alterations, renovations or repairs to an existing work site or work area.
- A work process introduced to the work site or work area.
- Significant equipment introduced to the work site or work area.

Noise exposure assessment

If workers are (or may be) exposed to noise above 82 dba L_{ex} in a work site/area, the employer must ensure a noise exposure assessment is conducted in accordance with CSA Standard Z107.56-18, *Measurement of noise exposure*. An indication that noise might be above 82 dba is when workers are raising their voices to be heard over background noise.

The noise assessment must be performed and interpreted by a competent person with specialized technical knowledge, using specific types of equipment and using specific settings.

Employers can use in-house staff if they are competent, or can hire a competent service provider, such as an OHS consultant. For more information, see [Tips on selecting an OHS consultant](#).

Employers must ensure noise exposure assessments are updated if any changes at the work site affect the noise level or the length of time a worker is exposed to noise.

Noise exposure assessments must be made available to affected workers or an OHS officer upon request, and must be kept for at least three years from the date of the assessment.

Noise management program

If a noise exposure assessment confirms that workers are exposed to excess noise at a work site, the employer must develop and implement a noise management program. This program must include:

- Procedures for addressing noise at the work site/area, measuring worker exposure to noise, and educating workers on the hazards of exposure to excess noise.
- Identification of work areas at the work site where noise might exceed exposure limits.
- The noise control methods to be used.
- Training workers in the correct use of noise control measures and hearing protection devices.
- Selection, use and maintenance of hearing protection devices be used and worn by workers.
- Posting of suitable warning signs in any work area where the noise level exceeds 85 dba.
- The requirements for audiometric testing and maintenance of audiometric test records.
- An annual review of the noise management program that includes consideration of the audiometric testing data provided by a physician or audiologist, along with any concerns they have (see **Audiometric testing** on the next page).
 - Note: The audiometric testing information employers receive is one way employers can assess the effectiveness of their noise controls. The results can also show trends for specific occupations or groups of workers, for various processes, for different departments, or between different work sites.

Hearing protection devices and fit testing

There are two common types of hearing protection devices: earplugs and earmuffs. Earplugs (all insert-type plugs, including custom molded earplugs) fit into the ear, while earmuffs fit over the ear (either headband-style or mounted on a hard hat).

Employers must ensure any hearing protection devices used and worn by their workers:

- Meet the requirements of CSA Standard Z94.2-14 (R2019), *Hearing protection devices - Performance, selection, care, and use*.
- Are fit tested to each worker in accordance with the above CSA standard.

The CSA standard doesn't specify a universal fit testing method. Instead, it requires that the manufacturer's specified method must be followed when fit testing a particular hearing protection device. If a manufacturer offers a choice of multiple fit testing methods for a device, employers can select any of those methods.

Audiometric testing

Audiometric testing involves performing an initial hearing test to establish a baseline measurement, then repeating the test to see if there have been any changes.

Employers must provide and pay for the following audiometric testing for workers who are or may be exposed to excess noise in a work area:

- An initial baseline test. This test must be done as soon as reasonably practicable, but not later than:
 - six months after the worker is employed, or
 - within six months after a worker is (or may be) exposed to excess noise because of a change in the worker's duties or process conditions.
- A test not more than 12 months after the initial baseline test.
- Further tests at least every second year thereafter.

Employers must ensure audiometric testing is performed by an audiometric technician who works in consultation with a physician, audiologist or occupational health nurse familiar with the work site or work area. The audiometric technician must ensure that arrangements are made for any audiograms showing a significant threshold shift to be assessed by a physician or audiologist.

Audiometric technicians must conduct audiometric testing in accordance with CSA Standard Z107.6:16 (R2020), *Audiometric testing for use in hearing loss prevention programs*. They also must use an audiometer that complies with ANSI/ASA S3.6-2018, *Specification for Audiometers*, as well as additional requirements in CSA Standard Z107.6:16.

Workers who undergo employer-provided audiometric testing are deemed to be at work when travelling to and from the test and taking the test.

Test results

The physician or audiologist must provide aggregated data on worker audiometric test results to the employer at least annually (without including information that could identify an individual worker) and must advise the employer as soon as possible of any concerns that they feel are related to noise management at the work site/area.

The physician or audiologist must also notify an Alberta OHS Director of Medical Services of any noise-induced hearing loss identified by audiometric testing, as this is a notifiable disease under Section 30 of the OHS Act. Information on notifying the Director (including a notification form) is available in [Notifiable occupational diseases](#) on the OHS Resource Portal.

Significant hearing loss

If the results of an audiometric test indicate significant hearing loss (referred to in OHS legislation as a "significant threshold shift"), the audiometric technician must:

- Advise the worker of the test results no more than 30 days after the test is completed.
- Send the physician or audiologist the test results, the results of the baseline audiometric test, and any other relevant information.

If the physician/audiologist confirms the significant threshold shift, the physician/audiologist must:

- Inform the worker within 30 days of receiving the test results.
- Send the results of the audiometric test to the worker's physician (with the worker's written consent).

Audiometric technicians can use audiometric test sessions as an opportunity to educate workers about hearing loss prevention (although this is not a legislated requirement). During testing sessions, audiometric technicians are encouraged to:

- Discuss the results with each worker.
- Reiterate the importance of avoiding exposure to loud noise and wearing hearing protection.
- Use the opportunity to motivate workers to protect their hearing while on or off the job.

Contact us

OHS Contact Centre

Alberta toll-free

- 1-866-415-8690

Edmonton region

- 780-415-8690

Deaf or hard of hearing (TTY)

- 1-800-232-7215 (Alberta toll-free)
- 780-427-9999 (Edmonton region)

Notify OHS of health and safety concerns

alberta.ca/file-complaint-online.aspx

Call the OHS Contact Centre if you have concerns that involve immediate danger to a person on a work site.

For more information

CSA Standards (free account required)

community.csagroup.org/community/ohs/ohs-standards-view-access

Notifiable occupational diseases (MG030)

ohs-pubstore.labour.alberta.ca/mg030

Tips on selecting an OHS consultant (GS009)

ohs-pubstore.labour.alberta.ca/gs009

Report a workplace incident to OHS

alberta.ca/ohs-complaints-incidents.aspx

Website

alberta.ca/ohs

Get copies of the OHS Act, Regulation and Code

Alberta King's Printer

alberta.ca/alberta-kings-printer.aspx

OHS

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